

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A nucleic acid detection sensor comprising:
a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed; and
a counter electrode which is arranged opposite to the nucleic acid chain fixed electrodes, wherein a current flows between the counter electrode and each nucleic acid chain fixed electrode; and
a reference electrode, wherein
the reference electrode and the nucleic acid chain fixed electrodes are formed on a same plane and the counter electrode is formed so as to surround the nucleic acid chain fixed electrode.

Claim 2 (Canceled).

Claim 3 (Previously Presented): The nucleic acid detection sensor according to claim 1, wherein the counter electrode includes a plurality of counter electrodes and the plurality of counter electrodes are provided for the nucleic acid chain fixed electrodes, respectively.

Claim 4 (Original): The nucleic acid detection sensor according to claim 1, wherein each of the nucleic acid chain fixed electrodes has a flat plane to which the probe nucleic acid is fixed,
the counter electrode has a flat plane, and

the flat plane of one of the nucleic acid chain fixed electrodes is arranged to face the flat plane of the counter electrode.

Claim 5 (Previously Presented): The nucleic acid detection sensor according to claim 1, wherein

the nucleic acid chain fixed electrodes and the counter electrode is arranged so that a test liquid can flow therebetween.

Claim 6 (Previously Presented): The nucleic acid detection sensor according to claim 1, wherein

a test liquid is filled between the nucleic acid chain fixed electrodes and the counter electrode so that a current change between the nucleic acid chain fixed electrodes and the counter electrode caused by a hybridization of the probe nucleic acid and a nucleic acid in the test liquid is detected.

Claim 7 (Previously Presented): The nucleic acid detection sensor according to claim 1, wherein

a duplex chain cognitive body is added to a test liquid filled between the nucleic acid chain fixed electrodes and the counter electrode, and

a current change between the nucleic acid chain fixed electrodes and the counter electrode caused by the duplex chain cognitive body is detected.

Claim 8 (Previously Presented): The nucleic acid detection sensor according to claim 1, wherein

the nucleic acid chain fixed electrodes are comb electrodes.

Claim 9 (Previously Presented): The nucleic acid detection sensor according to claim 1, further comprising
a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes, respectively.

Claim 10 (Canceled).

Claim 11 (Currently Amended): The A nucleic acid detection sensor ~~according to~~
~~claim 10, comprising:~~

a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed;

a counter electrode, a current flowing between each of the nucleic acid chain fixed electrodes and the counter electrode; and

a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes, respectively, wherein

the nucleic acid chain fixed electrodes are comb electrodes.

Claim 12 (Currently Amended): The A nucleic acid detection sensor ~~according to~~
~~claim 10, further~~ comprising:

a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed;

a counter electrode, a current flowing between each of the nucleic acid chain fixed electrodes and the counter electrode;

a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes,
respectively;

a first amplifier which inputs a signal from the reference electrode or a scanning line;
a second amplifier to input a reference potential to apply a predetermined potential to
the counter electrode; and
a reference resistor connected between an output side of the first amplifier and the
reference potential.

Claims 13-14 (Canceled).

Claim 15 (Currently Amended): ~~The~~ A nucleic acid detection sensor ~~according to~~
~~claim 10, comprising:~~

a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid
chain is fixed;

a counter electrode, a current flowing between each of the nucleic acid chain fixed
electrodes and the counter electrode; and

a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes,
respectively, wherein

the counter electrode and the nucleic acid chain fixed electrodes are formed on a same
plane and the counter electrode is formed so as to surround the nucleic acid chain fixed
electrodes.

Claim 16 (Currently Amended): A nucleic acid detection sensor comprising:

a plurality of nucleic acid chain fixed electrodes, to each of which a probe nucleic
acid chain is fixed;

a counter electrode;

a plurality of scanning lines each configured to transmit, one by one, a select signals ~~for selecting~~ signal that selects more than one of the plurality of nucleic acid chain fixed electrodes ~~one by one~~;

a plurality of signal lines configured to transmit a measurement signal from the plurality of nucleic acid chain fixed electrodes; and

a plurality of switching elements connected with the plurality of nucleic acid chain fixed electrodes, the plurality of scanning lines, and the plurality of signal lines, configured to turn on and turn off a connection between the plurality of nucleic acid chain fixed electrodes and the plurality of signal lines according to the select signals from the plurality of scanning lines, and provided for the nucleic acid chain fixed electrodes, respectively.

Claim 17 (Previously Presented): The nucleic acid detection sensor according to claim 16, further comprising

a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes, respectively.

Claim 18 (Previously Presented): The nucleic acid detection sensor according to claim 16, wherein

the counter electrode and the nucleic acid chain fixed electrodes are formed on a same plane and the counter electrode is formed so as to surround the nucleic acid chain fixed electrode.

Claim 19 (Previously Presented): The nucleic acid detection sensor according to claim 16, wherein

a test liquid is filled between the nucleic acid chain fixed electrodes and the counter electrode so that a current change between the nucleic acid chain fixed electrodes and the counter electrode caused by a hybridization of the probe nucleic acid and a nucleic acid in the test liquid is detected.

Claim 20 (Previously Presented): The nucleic acid detection sensor according to claim 19, wherein

a duplex chain cognitive body is added to a test liquid filled between the nucleic acid chain fixed electrodes and the counter electrode, and

a current change between the nucleic acid chain fixed electrodes and the counter electrode caused by the duplex chain cognitive body is detected.

Claim 21 (Previously Presented): The nucleic acid detection sensor according to claim 16, further comprising a reference electrode.

Claim 22 (Currently Amended): The nucleic acid detection sensor according to claim 16, further comprising a decoder connected to the plurality of scanning lines, configured to generate the select signals.

Claim 23 (Previously Presented): The nucleic acid detection sensor according to claim 22, further comprising:

a timing pulse generator configured to generate a clock signal; and

a counter configured to connect the timing generator with the decoder.

Claim 24 (Previously Presented): The nucleic acid detection sensor according to claim 16, further comprising a plurality of A/D converters each connected to the plurality of signal lines.

Claim 25 (Previously Presented): The nucleic acid detection sensor according to claim 24, further comprising a plurality of amplifiers connected between the plurality of signal lines and the plurality of A/D converters.

Claim 26 (Previously Presented): The nucleic acid detection sensor according to claim 16, further comprising:

a plurality of transistors each connected to the plurality of signal lines; and
a common A/D converter connected to the plurality of signal lines via the plurality of transistors.

Claim 27 (Previously Presented): The nucleic acid detection sensor according to claim 26, a plurality of amplifiers connected between the plurality of nucleic acid chain fixed electrodes and the plurality of transistors.

Claim 28 (Previously Presented): The nucleic acid detection sensor according to claim 16, wherein the plurality of signal lines are covered with insulation films.

Claim 29 (Previously Presented): The nucleic acid detection sensor according to claim 16, wherein the nucleic acid chain fixed electrodes are comb electrodes.

Claim 30 (Previously Presented): The nucleic acid detection sensor according to claim 21, wherein the nucleic acid chain fixed electrodes and the reference electrode are comb electrodes, and the nucleic acid chain fixed electrodes and the reference electrodes are arranged to be mutually engaged.

Claim 31 (Previously Presented): The nucleic acid detection sensor according to claim 29, wherein the counter electrode is comb electrode, and the nucleic acid chain fixed electrodes and the counter electrode are arranged to be mutually engaged.

Claim 32 (Previously Presented): The nucleic acid detection sensor according to claim 8, wherein
the counter electrode is comb electrode, the nucleic acid chain fixed electrodes and the counter electrode are arranged to be mutually engaged.

Claim 33 (Canceled).

Claim 34 (Currently Amended): The nucleic acid detection sensor according to claim 33 1, wherein

the nucleic acid chain fixed electrodes and the reference electrode are comb electrodes, and the nucleic acid chain fixed electrodes and the reference electrode are arranged to be mutually engaged.

Claim 35 (Canceled).

Claim 36 (Previously Presented): The nucleic acid detection sensor according to claim 11, wherein

the reference electrode is comb electrode, the nucleic acid chain fixed electrodes and the reference electrode are arranged to be mutually engaged.

Claim 37 (Previously Presented): The nucleic acid detection sensor according to claim 11, wherein

the counter electrode is comb electrode, the nucleic acid chain fixed electrodes and the counter electrode are arranged to be mutually engaged.

Claim 38 (Canceled).

Claim 39 (Currently Amended): ~~The~~ A nucleic acid detection sensor ~~according to~~
~~claim 10, comprising:~~

a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed;

a counter electrode, a current flowing between each of the nucleic acid chain fixed electrodes and the counter electrode; and

a plurality of reference electrodes provided for the nucleic acid chain fixed electrodes, respectively, wherein

~~the~~ a reference electrode and the nucleic acid chain fixed electrodes are formed on a same plane and the reference electrode is formed so as to surround the nucleic acid chain fixed electrode.

Claim 40 (Currently Amended): The nucleic acid detection sensor according to claim 16,

wherein ~~the~~ a counter electrode provided for ~~the~~ a nucleic acid chain fixed electrodes, respectively.

Claim 41 (Previously Presented): The nucleic acid detection sensor according to claim 21, wherein

the reference electrode and the nucleic acid chain fixed electrodes are formed on a same plane and the reference electrode is formed so as to surround the nucleic acid chain fixed electrode.

Claim 42 (New): A nucleic acid detection sensor comprising:
a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed; and

a counter electrode which is arranged opposite to the nucleic acid chain fixed electrodes, wherein a current flows between the counter electrode and each nucleic acid chain fixed electrode, wherein

the nucleic acid chain fixed electrodes are comb electrodes.

Claim 43 (New): A nucleic acid detection sensor comprising:
a plurality of nucleic acid chain fixed electrodes to each of which a probe nucleic acid chain is fixed; and

a counter electrode which is arranged opposite to the nucleic acid chain fixed electrodes, wherein a current flows between the counter electrode and each nucleic acid chain fixed electrode, and

a reference electrode, wherein

the nucleic acid chain fixed electrodes and the reference electrode are comb electrodes, and the nucleic acid chain fixed electrodes and the reference electrode are arranged to be mutually engaged.